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*The New York Times*

Evidence Suggests Ukrainian Missile Caused Market Tragedy

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Updated September 19, 2023 · 6 min read



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The Sept. 6 missile strike on Kostiantynivka in eastern Ukraine was one of the deadliest in the country in months, killing at least 15 civilians and injuring more than 30 others. The weapon's payload of metal fragments struck a market, piercing windows and walls and wounding some victims beyond recognition.



Police officers and rescuers inspect the site of a Russian military strike in Kostiantynivka, Donetsk region, Ukraine, September 6, 2023. Press service of the Interior Ministry of Ukraine/Handout via REUTERS (Handout . / reuters)

Less than two hours later, President Volodymyr Zelenskyy blamed Russian “terrorists” for the attack, and many media outlets followed suit. Throughout its invasion of Ukraine, Russia has repeatedly and systematically attacked civilians and struck schools, markets and

residences as a deliberate tactic to instill fear in the populace. In

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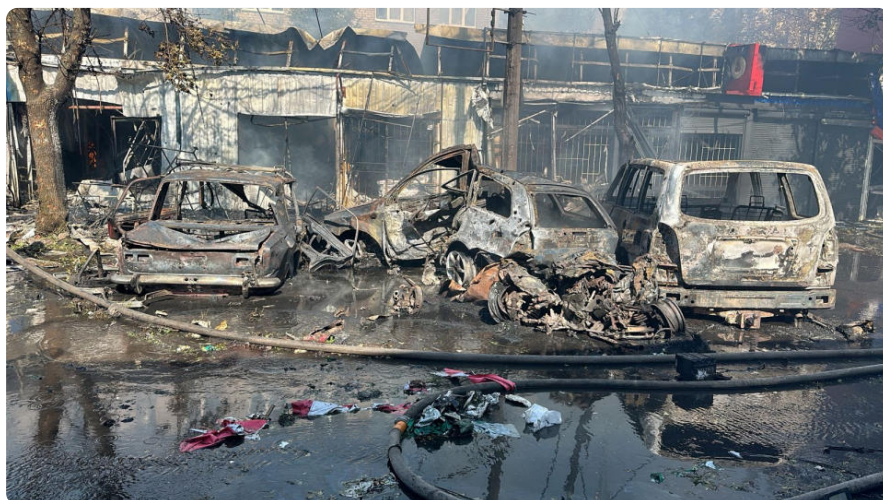
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But evidence collected and analyzed by The New York Times, including missile fragments, satellite imagery, witness accounts and social media posts, strongly suggests the catastrophic strike was the result of an errant Ukrainian air defense missile fired by a Buk launch system.

The attack appears to have been a tragic mishap. Air defense experts say missiles like the one that hit the market can go off course for a variety of reasons, including an electronic malfunction or a guidance fin that is damaged or sheared off at the time of launch.

The likely missile failure happened amid the back-and-forth battles common in the surrounding area. Russian forces shelled Kostiantynivka the night before; Ukrainian artillery fire from the city was reported in a local Telegram group just minutes before the strike on the market.



Burned cars are seen at the site of a Russian military strike, amid Russia's attack on Ukraine, in Kostiantynivka, Donetsk region, Ukraine September 6, 2023. Press service of the State Emergency Service of Ukraine in Donetsk region/Handout via REUTERS ATTENTION EDITORS - THIS IMAGE ... [More](#)

A spokesperson for Ukraine's armed forces said the country's security service is investigating the incident and under national law can't comment

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from accessing the missile debris and impact area in the strike's immediate aftermath. But the reporters were eventually able to get to the scene, interview witnesses and collect remnants of the weapon used.



The Strike

Security camera footage shows that the missile flew into Kostiantynivka from the direction of Ukrainian-held territory, not from behind Russian lines.

As the sound of the approaching missile is heard, at least four pedestrians appear to simultaneously turn their heads toward the incoming sound. They face the camera — in the direction of Ukrainian-held territory. Moments before it strikes, the missile's reflection is visible as it passes over two parked cars, showing it traveling from the northwest.

The missile's warhead detonates a few yards above the ground shortly before impact, blasting metal fragments outward. The resulting crater and damage extending from the point of detonation is consistent with a missile coming from a northwesterly route, according to an explosives expert and a Times analysis.

A Suspected Ukrainian Launch Site

Further evidence reveals that minutes before the strike, the Ukrainian military launched two surface-to-air missiles toward the Russian front line from the town of Druzhkivka, 10 miles northwest of Kostiantynivka.

Reporters with the Times were in Druzhkivka when they heard an outgoing missile launch at 2 p.m., followed a few minutes later by a second. By chance, one member of the team recorded the first launch in a voice message.

Residents in Druzhkivka also reported an outgoing launch at that time on a local Telegram group. "One more," a post at 2:03 p.m. said, referring to a second missile launch. Locals near the launches described them as abnormally loud — beyond the sounds of war they have become accustomed to — which tracks with witness accounts of past Buk launches.

The timing of these launches is consistent with the time frame for the missile that struck the market in Kostiantynivka, around 2:04 p.m.

Additionally, two witnesses who spoke to the Times said they saw the

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time around the time of the strike, one of them said he saw the missiles going in the direction of Kostiantynivka. A Ukrainian soldier stationed in Druzhkivka, who asked to remain anonymous, also said he heard two missile launches around the same time.

One of the witnesses also said the missiles were launched from fields on the outskirts of the town, a place residents say is used by the Ukrainian military and from which they have previously seen air defense missiles.

Times reporters who visited the site saw indications that it had recently been used by the military, including trenches, trash pits and wide tracks consistent with a large military vehicle.

Another key indicator: scorch marks. Various ground-launched air defense missiles are fired from the rear of a large vehicle and burn the surrounding turf when they are fired. Analysis of before-and-after satellite imagery shows new scorch marks around the trenches on the day of the strike, possibly indicating that the site was used for launching missiles.

The Missile

In the aftermath of the attack, Ukrainian authorities said Russian forces used a missile fired by an S-300 air defense system, which Russia has used both to intercept aircraft and strike targets on the ground. But an S-300 missile carries a different warhead from the one that exploded in Kostiantynivka.

The metal facades of buildings closest to the explosion were perforated with hundreds of square or rectangular holes, probably made by cubelike objects blown outward from the missile.

Measurements of the holes — and fragments found at the scene — are consistent in size and shape with one weapon in particular: the 9M38 missile, which is fired by the mobile Buk anti-aircraft vehicle. Ukraine is known to use the Buk system, as is Russia.

Some of the holes are less than 10 millimeters in width, while others are slightly larger. The 9M38 contains two different sizes of solid-metal cubic fragments: 8 millimeters and 13 millimeters across.

A Times reporter also reviewed other missile fragments recovered from multiple locations in Ukraine that had been fired by Russian S-300, S-400 and Buk air defense systems, as well as two different U.S. air defense



systems. Their shapes and measurements show that the damage at the

Two independent military bomb-disposal experts, who asked to remain anonymous so they could speak candidly, came to the same conclusion and said that the fragments and damage at the strike site are most consistent with an 9M38.



Several witnesses either heard or saw Ukrainian forces firing surface-to-air missiles from Druzhkivka toward Kostiantynivka at the time of the market strike. And evidence collected at the market shows that the missile came from that direction.

Why the missile, which has a maximum range of just over 17 miles, may have landed in Kostiantynivka is unclear — although it's possible it malfunctioned and crashed before hitting its intended target.

In any case, at such a short range — less than 10 miles — the missile is most likely to have landed with unspent fuel in its rocket motor, which would detonate or burn upon impact, offering a possible explanation for the widespread scorch marks at the market.

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